PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 30 SEP 2004
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Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
GIP15PT-03		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP 03/06823	27.06.2003	03.07.2002
International Patent Classification (IPC) or both national classification and IPC		
D21H19/46		
Applicant		
LAMBERTI S.P.A. et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
30.01.2004	29.09.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Nestby, K Telephone No. +49 89 2399-8625

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/06823

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-10 as originally filed

Claims, Numbers

1-16 received on 19.07.2004 with letter of 09.07.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

   see separate sheet

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-16
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-16
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item I
Basis of the report

1. Basis for newly filed independent claim 16 is found in lines 4 to 9 on page 4 of the description. Here it is clearly disclosed that the aqueous dispersion further contains thickeners. The omission of the word "thickeners" in claim 16 is an inadmissible broadening of the scope.

Re Item V
Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2. Reference is made to the following documents:

D1: EP-A-0 439 363
D2: US-A-5 085 707

The document **D1** discloses a desizing agent which can be a sulfosuccinic acid (derivative), see claim 1 and lines 54 - 59 of column 13. This agent can be used as ingredient of a coating composition together with a binder and a filler (see claim 6).
In particular, Alkasurf SS-0-75 is used in examples IV and XIII.

According to D1, see column 8, an acrylamide-acrylic copolymer is mentioned as preferred binder.
Although a dispersant is not explicitly mentioned in D1 their use in coating compositions is conventional, see e. g. D2, column 4, line 48 - 51.

The paper as disclosed in D1 is suitable for various printing processes such as ink jet printing, **gravure printing** (see the first paragraph of the description in column 1; emphasized by the examiner).

As follows from the foregoing the examiner is inclined to consider D1 as the

closest prior art to the subject-matters of independent claims 1, 11, 12, 14, 16.

2.1 The applicant, however, contends firstly that "pigments employed in the coating of paper for rotogravure printing are not generally used for any other kind of printing process" and secondly that "as known in the art, sized substrates are not suitable for rotogravure printing."

The opinion of the examiner is as follows:

Considering that rotogravure printing is a special high-production gravure printing using a rotary gravure press, it might be admitted that unsized paper is preferred for this kind of printing, see lines 5 to 15 in column 1 of US-A-3 860 548. Nevertheless, although perhaps not preferred, sized paper can also be printed by a rotogravure process, see example 16 of the same US 3 860 548 as well as claims 1 ("high-speed gravure printing"), 17 of US-A-4 445 970, and claim 1 ("sized, coated paperboard") and line 65 in column 8 ("rotogravure printing") of US-A-5 776 619.
These documents (referred to as D3, D4 and D5, respectively) were not cited in the international search report. Copies of the documents are appended hereto. Therefore, the skilled person had no reason whatsoever for not considering D1 for rotogravure printing.

As to the first argument of the applicant it is unclear from the description, see in particular page 3, which feature is supposed to distinguish the "finely divided pigments" of claim 1 from the prior art as disclosed in D1 because the particle size (40-90% finer than 2 micrometers) is a preferred feature only (see dependent claim 8). The kind of pigments used, e. g. kaolins, calcium carbonate, titanium dioxide are conventional (see claims 7-9 of D1).
In any case, should the skilled person wish to make a coated paper for (roto)gravure printing as disclosed in said first paragraph of column 1 of D1, he/she would turn to D2 which teaches (see claim 1) to use kaolin particles of which at least 70% have a particle size of less than 2 microns in a paper coating composition for rotogravure applications (column 4, first paragraph).

It would hence not have required any inventive step to take a composition comprising e. g. sodium dioctyl sulfosuccinate as taught by examples IV and XIII of D1 and to extend it with an acrylic binder and finely divided pigments and a dispersant, thereby arriving at the subject-matter of claims 1, 11, 12, 14, 16 without having to exercise any inventive skill.

Therefore, the subject-matter of claims 1, 11, 12, 14, 16 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT).

3. The same reasoning applies, mutatis mutandis, to the subject-matter of the dependent claims 2 - 10, 13, 15 which therefore are also considered not inventive.

Claims.

1. Paper coating formulations for rotogravure printing processes containing:
   a. 100 parts by weight of finely divided pigments;
   b. from 0.001 to 5 parts by weight of one or more substances selected from the group consisting of: mono-alkylsulfosuccinate; di-alkylsulfosuccinates; sulfosuccinic acid mono-esters of ethoxylated and/or propoxylated fatty alcohols; sulfosuccinic acid di-esters of ethoxylated and/or propoxylated fatty alcohols;
   c. from 3 to 15 parts by weight of a polymeric acrylic binder;
   d. from 0.005 to 0.4 parts by weight of a dispersant.
2. Paper coating formulations for rotogravure printing processes according to claim 1 wherein the sulfosuccinic acid mono- and di-esters of ethoxylated and/or propoxylated fatty alcohols are ethoxylated and/or propoxylated with from 1 to 50 moles of oxide.
3. Paper coating formulations for rotogravure printing processes according to claim 2 wherein the sulfosuccinic acid mono- and di-esters of ethoxylated and/or propoxylated fatty alcohols are ethoxylated and/or propoxylated with from 20 to 40 moles of oxide.
4. Paper coating formulations for rotogravure printing processes according to any of the previous claims wherein the mono- and di-alkylsulfosuccinate are mono- or di- C_2-C_{16} linear or branched alkylsulfosuccinates,
5. Paper coating formulations for rotogravure printing processes according to claim 4 wherein the di-alkylsulfosuccinate is dioctylsulfosuccinate.
6. Paper coating formulations for rotogravure printing processes according to any of the previous claims containing from 0.01 to 1 parts by weight of one or more substances selected from the group consisting of: mono-alkylsulfosuccinate; di-alkylsulfosuccinates; sulfosuccinic acid mono-esters of ethoxylated and/or propoxylated

fatty alcohols; sulfosuccinic acid di-esters of ethoxylated and/or propoxylated fatty alcohols.

7. Paper coating formulations for rotogravure printing processes according to claim 6 containing from 0.02 to 0.8 parts by weight of one or more substances selected from the group consisting of: mono-alkylsulfosuccinate; di-alkylsulfosuccinates; sulfosuccinic acid mono-esters of ethoxylated and/or propoxylated fatty alcohols; sulfosuccinic acid di-esters of ethoxylated and/or propoxylated fatty alcohols.
8. Paper coating formulations for rotogravure printing processes according to any of the previous claims wherein the finely divided pigments have from 40 to 90% of the particles finer than 2μm,
9. Paper coating formulations for rotogravure printing processes according to any of the previous claims wherein the mixture of finely divided pigments preferably contains at least 30% by weight of kaolin for rotogravue printing having from 40 to 70% of the particles finer than 2 μm.
10. Paper coating formulations for rotogravure printing processes according to any of the previous claims containing from 0.3 to 2 parts by weight of calcium stearate.
11. Aqueous dispersion for the coating of rotogravure printing paper containing from 40 to 70% by weight of one of the the paper coating formulations according to claims 1-10 and from 30 to 60% by weight of water.
12. Paper for rotogravure printing processes characterised by the fact that it is coated with from 4 to 15 g/m^2 of a thin layer of the paper coating formulation of claims 1-10.
13. Paper for rotogravure printing processes according to claim 12, characterised by the fact that it is coated with from 6 to 10 g/m^2 of a thin layer of the paper coating formulation of claims 1-10.